

REMARKS

In response to the Office Action mailed December 24, 2008, Applicants respectfully request reconsideration. Each of the issues raised in the Office Action is addressed herein.

Claims 1-20 and 23-25 were previously pending in this application. In this paper, claims 1, 16-20 and 25 have been amended. No new claims have been added or canceled. As a result, claims 1-20 and 23-25 are pending for examination, with claims 1, 16-20, 23, and 25 being independent claims. No new matter has been added. The application as now presented is believed to be in allowable condition.

Interview Summary

Initially, Applicants' representative thanks Examiner Wu for the courtesies extended in granting and conducting a telephone interview on February 20, 2009, the substance of which is summarized herein. Applicants were represented at the interview by the undersigned.

During the interview the Examiner suggested that the claimed subject matter is common knowledge in the prior art. Applicants respectfully disagree and, pursuant to MPEP § 2144.03C and 37 CFR 1.104(c)(2), respectfully request the Examiner to provide some documentary evidence in support of the Examiner's assertions. If the Examiner is relying on personal knowledge to support the finding of what is known in the art, the Examiner must provide an affidavit or declaration setting forth specific factual statements and an explanation to support the finding, pursuant to 37 CFR 1.104(d)(2).

Rejections Under 35 U.S.C. §101

Claims 16, 18, 20 and 25 are rejected under 35 U.S.C. §101 because the claimed invention is directed to non-statutory subject matter.

Claim 16 has been amended to refer to "a computer-readable storage medium comprising computer-executable instructions that, when executed, perform a method..." Claims 18, 20, and 25 have been similarly amended. Claims in this form are clearly statutory under 35 U.S.C. §101.

Accordingly, withdrawal of the rejection is respectfully requested.

Rejections Under 35 U.S.C. §103

Claims 1-2, 9, 16-20 and 23-25 are rejected under 35 U.S.C. §103(a) as purportedly being unpatentable over U.S. Patent No. 6,771,966 B1 (Chow) in view of U.S. published application 2002/0101822 (Ayyagari et al.). Claims 3 and 10 are rejected under 35 U.S.C. §103(a) as being unpatentable over Chow in view of Ayyagari, further in view of U.S. published application 2004/0250128 A1 (Bush et al.). Claims 4, 7-8, 11 and 14-15 are rejected under 35 U.S.C. §103(a) as being unpatentable over Chow in view of U.S. published application 2003/0099194 A1 (Lee et al.). Claims 5-6 and 12-13 are rejected under 35 U.S.C. §103(a) as being unpatentable over Chow in view of U.S. Patent No. 6,411,598 B1 (McGlade). Applicants respectfully traverse these rejections to the extent they are maintained over the claims as amended herein.

“Links” and “Nodes”

During the interview the Examiner suggested that there is no technical difference between the general concepts of links and nodes. More specifically, the Examiner suggested that Chow's “links” are equivalent to the internet taps (ITAPs) recited in each of the independent claims. Applicants respectfully disagree. Chow makes a clear distinction between links and nodes. For example, col. 10, lines 3-7 of Chow states “if n represents the number of radio sites in a metropolitan area, then the number of possible links to join n nodes is $n(n-1)/2$. Additionally, the number of radio links which is necessary to connect n radio sites is $n-1$.” Chow does not treat nodes and links as synonymous. Rather, Chow states that links join nodes.

In order to expedite prosecution of the instant application, each of independent claims 1, and 16-20 have been amended to make clear that Chow's links are not equivalent to the ITAPs recited in the claims. For example, claim 1 recites “each ITAP in the set of potential ITAPs to be opened having a placement location.” Support for these amendments may be found, for example, in claim 25 as filed and paragraph 35 of the application.

Independent Claim 1

Claim 1 is directed to a method for determining placement locations of internet taps (ITAPS) in a network. Claim 1 recites, *inter alia*, “selecting an ITAP, from the set of potential ITAPs to be opened, to be added to a set of currently open ITAPs, wherein the selected ITAP

increases the node demands satisfied when opened together with ITAPs in the set of currently open ITAPs.”

Claim 1 clearly distinguishes over the cited references. The Examiner has cited col. 10, line 64 and col. 9, lines 66-67 as purportedly teaching these features. The first citation (col. 10, line 64) mentions eliminating links. In contrast, the claim requires “selecting an *ITAP*... to be added to the set of currently opened ITAPs.” During the interview, the undersigned emphasized that ITAPs recited in the claim are not equivalent to the links described by Chow. The Examiner did not seem to appreciate this distinction. The Examiner is referred to the preceding section which clearly demonstrates that Chow makes an explicit distinction between links and nodes. The second citation (col. 9, lines 66-67) states that an engineer may perform an iterative process. Specifically, Chow is describing a “process to provide the best set of radio links or radio topology once the nodes and radio sites have been identified” (col. 9, lines 48-50). Note that Chow makes an explicit distinction between identifying radio sites and the process of choosing links. The second citation is in reference to the process of choosing links. Chow simply does not teach or suggest “selecting an ITAP, from the set of potential ITAPs to be opened, to be added to a set of currently open ITAPs, wherein the selected ITAP increases the node demands satisfied when opened together with ITAPs in the set of currently open ITAPs.”

During the interview, the Examiner cited col. 1, line 58-60 of Chow as allegedly providing disclosure that anticipates claim 1. Applicants respectfully disagree. This sentence merely summarizes features of U.S. Patent Number 6,246,380, which is incorporated by reference in Chow and is hereinafter referenced to as “Chow 2.” Namely, the sentence states that Chow 2 provides a solution for deploying a radio system through the regulated positioning and orientation of the communication nodes. The citation does not teach or suggest any of the acts recited in claim 1.

In sum, Applicants respectfully submit that Chow simply does not teach or suggest “selecting an ITAP, from the set of potential ITAPs to be opened, to be added to a set of currently open ITAPs, wherein the selected ITAP increases the node demands satisfied when opened together with ITAPs in the set of currently open ITAPs.” Ayyagari does not cure this deficiency. Accordingly, claim 1 patentably distinguishes over the prior art of record, so that the rejection of claim 1 under 35 U.S.C. §103 should be withdrawn.

Claims 2-15 depend from claim 1 and are patentable based at least upon their dependency. Withdrawal of the rejection of claims 2-15 is respectfully requested.

Independent Claim 17

Claim 17 is directed to a method for determining placement locations of internet taps (ITAPs) in a network. Claim 17 recites, inter alia, “iterating through the set of time intervals; for each time interval, computing a total of node demands satisfied by adding an ITAP from the set of potential ITAPs to be opened, to a set of currently open ITAPs.”

Claim 17 clearly distinguishes over the cited references. On page 6, the Office Action alleges that claim 17 recites iterating through a set of time intervals instead of (iterating through) the set of potential ITAPs. Furthermore, the Office Action alleges that the iterating process over a set of potential ITAPs is substantially the same as the iterating process over a set of time intervals. Applicants respectfully disagree. In contrast to the Office Action’s assertion, claim 17 recites iterating through a set of time intervals *and* iterating through the set of potential ITAPs. Furthermore, the iterating process over a set of time intervals is not the same as iterating over a set of potential ITAPs. Repeating the iteration, addition, and selection of ITAPs can be performed to ensure all node demands of a network are satisfied. However, as explained in Section VI of the application beginning from paragraph 62, by additionally iterating through a set of time intervals, one can take into account the variations in the work load and provision ITAPs (location and connectivity) based on the workload. As explained in Section VI, by iterating through a set of time intervals, one can optimize ITAP locations for demands over multiple time intervals, which helps improve efficiency without sacrificing user performance. One of ordinary skill in the art can thus readily appreciate that the additional limitations of iterating through a set of time intervals can not be considered substantially the same as iterating through the set of potential ITAPs. By using connectivity information comprising a set of time intervals and by iterating through all the time intervals, network configurations are configured to change and adapt over different time periods depending on the traffic over the network. Such a dynamic network configuration is possible in mesh networks, but not in Chow’s network (RF networks), which are static. Hence the Examiner’s assertion that iterating through a set of time intervals is substantially the same as iterating through a set of potential ITAPs has no basis in the cited references. Chow and Ayyagari do not teach or suggest “iterating through the set of time

intervals; for each time interval, computing a total of node demands satisfied by adding an ITAP from the set of potential ITAPs to be opened, to a set of currently open ITAPs.”

In view of the foregoing, claim 17 patentably distinguishes over Chow and Ayyagari, considered alone or in combination. Withdrawal of the rejection of claim 17 is respectfully requested.

Independent Claim 19

Claim 19 is directed to a method for determining placement locations of internet taps (ITAPs) in a network. Claim 19 recites, *inter alia*, “selecting an ITAP, from the set of potential ITAPs to be opened, that satisfies a largest node demand; adding the selected ITAP to the set of currently opened ITAPs, wherein each node’s demand is the node’s maximum demand over all time intervals; repeating the iterating, selecting, and adding until the node demands at all time intervals are satisfied.”

Claim 19 clearly distinguishes over the cited references. The Office Action contends that Chow satisfies these limitations of claim 19 using the same rationale as the rejection of claim 1 and claim 17. It should be clear from the discussion above that the prior art of record fails to satisfy this limitation.

Accordingly, claim 19 patentably distinguishes over the prior art of record, so that the rejection of claim 19 under 35 U.S.C. §103 should be withdrawn.

Independent Claims 16, 18, and 20

Claims 16, 18 and 20 are computer-readable storage medium claims for performing methods similar to those recited in claims 1, 17 and 19, respectively. Therefore claims 16, 18 and 20 are believed to be in allowable condition for reasons similar to those discussed above in connection with claims 1, 17 and 19. Withdrawal of the rejection of claims 16, 18 and 20 is respectfully requested.

Independent Claims 23 and 25

Independent claims 23 and 25 relate to a method and computer-readable storage medium containing instructions for reducing potential placement locations of internet taps (ITAPs). The method comprises: identifying equivalence classes of nodes in a multi-hop wireless mesh

network which may be serviced by an ITAP; accepting equivalence class information for the network; determining whether a first equivalence class is covered by a second equivalence class; and eliminating the first equivalence class from consideration as a potential placement location for an ITAP if the first equivalence class is covered by the second equivalence class.

As noted above, Chow is not related to adding nodes, but is related to the deployment of links for RF networks. In Chow, locations of the nodes have already been determined and the links between the nodes are selected by a designer. A link analysis is conducted to facilitate the selection of links. As noted above, Chow teaches away from mesh networks and also fails to teach or suggest the potential placements of nodes. Thus, one of ordinary skill in the art can appreciate that Chow fails to teach or suggest multiple elements of claims 23 and 25. For example, Chow fails to teach or suggest determining the location coverage of classes, identifying equivalence classes of nodes in a multi-hop wireless mesh network serviced by a particular node, and eliminating a particular class of nodes if covered by another class of nodes.

Applicants' claims 23 and 25 include a limitation on determining whether the first equivalence class and the second equivalence class are covering the same locations. The Office Action presumes that, based on general knowledge, a second equivalence class as recited in claims 23 and 25 can be interpreted as a class with a known or previously selected location. Applicants respectfully disagree and, pursuant to MPEP § 2144.03C and 37 CFR 1.104(c)(2), respectfully request the Examiner to provide some documentary evidence in support of the Examiner's assertions. The Examiner failed to provide any documentary evidence in maintaining the rejection from the previous Office Action mailed January 4, 2008. If the Examiner is relying on personal knowledge to support the finding of what is known in the art, the Examiner must provide an affidavit or declaration setting forth specific factual statements and an explanation to support the finding, pursuant to 37 CFR 1.104(d)(2).

Absent the foregoing and for the reasons discussed above, claims 23 and 25 patentably distinguish over Chow. Withdrawal of the rejections of claims 23 and 25 is respectfully requested.

Claim 24 depends from claim 23 and is patentable based at least upon its dependency. Therefore, withdrawal of rejection of claim 24 is respectfully requested.

Comments on Dependent Claims

Since each of the dependent claims depends from a base claim that is believed to be in condition for allowance, Applicants believe that it is unnecessary at this time to argue the allowability of each of the dependent claims individually. However, Applicants do not necessarily concur with the interpretation of the dependent claims as set forth in the Office Action, nor do the Applicants concur that the basis for the rejection of any of the dependent claims is proper. Therefore, Applicants reserves the right to specifically address the patentability of the dependent claims in the future.

CONCLUSION

A Notice of Allowance is respectfully requested. The Examiner is requested to call the undersigned at the telephone number listed below if this communication does not place the case in condition for allowance.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicants hereby request any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, the Director is hereby authorized to charge any deficiency or credit any overpayment in the fees filed, asserted to be filed or which should have been filed herewith to our Deposit Account No. 23/2825, under Docket No. M1103.70167US00.

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Respectfully submitted,

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